Volume 260 **CONTENTS** 10 February 1994

Numerical simulations of stratified inviscid flow over a smooth obstacle. KEVIN G. LAMB *page* 1

Dynamics of a polarized vortex ring. D. VIRK, M. V. MELANDER and F. HUSSAIN 23

Topological vortex dynamics in axisymmetric viscous flows. MOGENS V. MELANDER and FAZLE HUSSAIN 57

The interaction between the mean flow and coherent structures in turbulent mixing layers. J. COHEN, B. MARASLI and V. LEVINSKI 81

Negative eddy viscosity in isotropically forced two-dimensional flow: linear and nonlinear dynamics. S. GAMA, M. VERGASSOLA and U. FRISCH 95

An example of active circulation control of the unsteady separated flow past a semi-infinite plate. L. CORTELEZZI, A. LEONARD and J. C. DOYLE 127

The current emitted by highly conducting Taylor cones. J. FERNÁNDEZ DE LA MORA and I. G. LOSCERTALES 155

A numerical and experimental study of transition processes in an obstructed channel flow. E. P. L. ROBERTS 185

Nonlinear interaction of shear flow with a free surface. ATHANASSIOS A. DIMAS and GEORGE S. TRIANTAFYLLOU 211

The influence of coherent structures and microfronts on scaling laws using global and local transforms. L. MAHRT and J. F. HOWELL 247

The scattering of sound waves by a vortex: numerical simulations and analytical solutions. TIM COLONIUS, SANJIVA K. LELE and PARVIZ MOIN 271

On the motion of a rigid cylinder in a rotating electrically conducting fluid. DAVID E. LOPER 299

The stability of statically unstable layers. S. A. THORPE 315

Statically unstable layers produced by overturning internal gravity waves. S. A. THORPE 333

Evolution of three-dimensional coherent structures in a flat-plate boundary layer. DIETMAR REMPFER and HERMANN F. FASEL 351

CORRIGENDUM 376

INDEX TO VOLUME 260 377

SCHEDULE OF INTERNATIONAL CONFERENCES ON FLUID MECHANICS 378